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ABSTRACT

This discussion of the nature of classification schemes and their functions focuses on the differing classification systems of North American and European-type libraries. The functions are bibliothecal, bibliographical, and cognitive. The bibliothecal function concerns the physical location of items within a library (e.g., the Dewey Decimal and the Library of Congress systems). Its efficiency and effectiveness depend most on: (1) diversity of forms, age of materials, user levels, and size of the collection; and (2) the flexibility, size, and layout of the physical library quarters. The bibliographical function attempts to organize the knowledge and information contained within any given document. Its success depends not on the physical quarters or diversity of library materials, but on the user's educational sophistication, academic or informational needs, and cultural, philosophical, and political background. The cognitive function addresses the assessment of relationships, interrelationships, connections, interconnections, associations, approximation, and relevance to describe the complete identity of items and facilitate retrieval of information. This function involves the formulation of subject descriptors, organizing the descriptors, and assisting the interrogation (searching) of files. It is concluded that one classification system cannot incorporate all three functions, yet libraries should combine at least two of the functions to improve the organization and retrieval of information. (Author/SD)

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FUNCTIONS OF LIBRARY CLASSIFICATION

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The recent years of library work have been characterized by growing international and intercultural cooperation and standardization. International book and serial numbers (ISBN and ISSN), standardization of bibliographic description (ISBD), and international machine readable bibliographic data (MARC tapes) are only a few examples of already fully implemented results of this cooperation. The addition of the recent internationalization and interculteralization of the Dewey Decimal Classification coupled with its increasing use outside the North American continent and the growing interest in multilingual use of PRECIS makes it imperative to look again at the goals and objectives of major standard library operations and practices. This paper attempts to re-define the functions of library classification in the spirit of the above mentioned internationalization. In order to accomplish this effectively, it is expedient to look first at both North American and European approaches to the problem. The major differences lie in basic European and North American catalogues and cataloguing traditions. In Canada and the USA, the dictionary catalogue (whether divided or not) with an open access, browsing library collection is virtually an undisputed lord and master of library students, practicing librarians and library users. On the other hand, in Europe (and its overseas cultural extensions) the ruling catalogue is a classified or systematic catalogue (the British National Bibliography being a good example) severed, if not totally divorced from the classification system used for shelving the library collection which is either behind closed doors or classified by a home made classification scheme. The two dominant forms of catalogues together with the two approaches to the collection have resulted in two different emphases and philosophies of library classification. The British and American approaches can be illustrated by numerous statements. The European statement can be illustrated by the following examples:

C. Vickery suggests that the purposes of classification are

> "to arrange books on shelves, to group inventions in patents, to classify the raw materials, intermediates and products of importance to a particular manufacturer, and so on."

He further singles out the prime objective of classification, namely to "reveal the manifold interrelations among the concepts of science."

Bernard I. Palmer defines the purposes of classification as:

1. "**shelving books** and other materials"
2. "**organizing entries** for such materials in **catalogues**,"
3. "systematic **interrogation of a catalogue**. . .called search strategy."

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W.C. Berwick states "that classifcation is the basis of all order in handling literature and its record."

American librarianship, like the American society, lacks the historical perspective. It is due to the ego-centric approach, its lack of interest in anything that does not immediately concern itself; its past, its neighbours, etc. (e.g. it discovers marvels in the kinship systems of the third world without realizing that the American librarianship discards values and philosophies the way the commercial multinational giants discard unwanted merchandise). In his article,*Classification: a Definition* (**Drexel Library Quarterly**, v 10, no 4, p 9) Harris Shupak, after an elegant philosophical introduction states: "At all costs, whatever scheme we invent or use, the classifcation must be able to perform efficiently at this central task--locating the document for the user. . .my definition of classification is apparent: it is the activity of storing documents for retrieval."

Other expressions of American points of view can be superbly illustrated by participants of an institute conducted in Champaign, Illinois in 1959. Speaker after speaker defined the classification in phrases that sounded like "a method of shelving books" and one speaker went further to say that classification "has ceased to be, if it ever was, a way of organizing the information in such books;"--and it "is not a major tool for the use of contents of libraries." Other American authors simply say that "classification exists to locate a book quickly and with as little fuss as possible," and they promptly add "the reader doesn't mind classification if it doesn't get in his way."

The European and North American views are, however, not in contradiction, they only reflect different functions:

1. namely organizing library materials, i.e. **Bibliothecal function**
2. organizing knowledge and information contained in the organized objects, i.e. **Bibliographic function**, and
3. formulating and organizing subject descriptions for information storage and retrieval, including the interrogation of files, i.e. **Cognitive funciton**.

BIBLIOTHECAL FUNCTION

The **bibliothecal function** of classification implies organized storage and retrieval of books, journals, pamphlets, reports, audio-visual materials, multi-media materials, and other items the library might choose to acquire, store (either permanently or temporarily) and service. This function appears to have been, up until now, the prime and only function of classification on the North American continent and is best accommodated by the two notable schemes: the Dewey Decimal Classification and the Library of Congress Classification. The efficiency and effectiveness of classification schemes and their possible manipulations depend upon the following factors:

1. Library materials
2. Physical quarters
3. the User

Library materials held by various libraries differ from each other in respect to:

a. Size of the collections
b. Diversity of forms
c. Diversity of age of materials
d. Diversity of levels (different levels of users educational development)

The larger the collection, the more difficult is browsing through that collection. It would be physically impossible to store or retrieve an item in the collection of 3,373,825 volumes and pieces of music contained in the Library of Congress if it were classified by the eight numbers allocated to music in the abridged Dewey Decimal Classification. The 258 pages of the Class M (Music: books on music) of the Library of Congress Classification will suit much better although even this oversized schedule will not be very accommodating. We would have to classify 13,077 pieces per one page of the scheme. In order to bring order into a collection of that size various **use oriented** devices must be introduced. Periodicals, almanacs, societies and organizations, institutions festivals, programmes circulars and advertisements, to list only a few, are separated from the main part of the literature of music. The same use oriented devices need to appear when we deal with various forms of materials. Films, maps, recordings, microforms, rare books, etc. require special storage containers or special rooms with appropriate climatic or security devices. The special conditions produce sub-collections which cannot be accommodated within the main body of the classification scheme--and very often require a different approach. Thus most libraries today do not use the same schemes for classification of films, recordings and the like.

The age of materials, even when not within the category of "rare books" presents special problems. Library of Congress introduces divisions based on the age of the materials, e.g.:

M1.A1 Music printed or manuscript in the US before 1820
M1.A12 Music printed or manuscript in the US between 1820 and about 1860
M1.A12 Music printed in the US between 1820 and about 1860 not contained elsewhere classified, etc.

Libraries aiming at adult users that acquire juvenile literature find it necessary to separate it from the adult literature. Here again the Library of Congress Classification has provided special divisions based on the age of the user (level of material) by introducing special places for juvenile instruction and study (M 1375-1420; M 1990-1998; M 2190-2196; ML 3930; MT 155; MT 895-948).

The **physical quarters**: The building can make a classification scheme workable or it can turn it into a state of complete chaos. Here the following elements must be taken into account:

a. Flexibility
b. Size
c. Number of individual rooms
d. Distance between the individual rooms, etc.

A library consisting of multiple rooms or rooms of varied sizes and separated from each other by courtyards, waterpools, staircases and the like will present a classification scheme with interesting problems, a librarian with headaches and a user with endless frustrations. Special problems will arise in libraries with closed stacks and with storage rooms not forming an integral part of the main library building. It might become necessary to group together the items that would normally belong to different disciplines under one general heading and store them, for convenience sake, in immediate proximity. The good illustration of this problem can again be drawn from the Library of Congress Classification: biography of Ann Hathaway, Elizabethan England during the Shakespeare's life, Shakespeare's houses, illustrations to Shakespeare's works, fiction based on Shakespeare's life, and biographies of famous actors of Shakespearean parts are all grouped in PR 2750-3112.

The **user's use** of classified and open stack collections has been a subject of many studies and it would be pointless to repeat it here. It is common knowledge that a subject specialist will approach a library collection differently that a layman. Precision required by one might confuse the other; scientific and logical development might by preference give way to a general statement based on overall concepts serving as direction rather that analysis of relationships. The most important consideration appears to be the users of published materials and their relative importance to an individual.

The above brief discussion concerning the **bibliothecal functions** of library classification indicates that **use** and **common sense** dictate the basis of classification schedules for storage and not a systematic development (based on logic) of a subject matter. There is, however, a substantial literature on the horrors of separating pure sciences from applied sciences; language from literature; etc. We are also often told that all related disciplines must be as close together as possible. We might be told that zoology (including animal anatomy must be in the immediate vicinity of technology derived from zoology. Let us translate this into a use-oriented situation.

Let us imagine a well administered department store or a large local market based on long tradition. Would one expect to find leather products such as shoes, belts, handbages, etc., sold next to beef, pork, veal or mutton? Feather-stuffed pillows and mattresses next to chicken liver or goose giblets? To take this comparison a step further, how often will the butcher require an anatomic treatise or the zoologist a cookbook?

To locate a cookbook or an anatomic treatise, a user needs a location symbol very much in the same way as a shopper needs directional information as to where to find goose giblets or goose-feather-stuffed pillows. It must be as simple as possible. Introducing facets at this stage will confuse and obstruct, not ease, the process. No businessman will give you the location of his pillows together with:

Time facet
Place facet
Form of presentation facet
Race facet
Language facet
Ownership facet
or any other facet

All he will tell you is which floor, which corner, which shelf. For storage and retrieval of library materials all we need is to be told where the book is--not what it contains. Therefore, the classificatory notation is only a location symbol directing the user to an individual item.

BIBLIOGRAPHICAL FUNCTION

The **bibliographic function** of classification implies organizing **knowledge** and **information** contained within any available document. It means therefore, the building of a systematic approach to the total subject content of the variety of objects, regardless of their forms such as books, pamphlets, journals--whether on microfilm, microfiche or magnetic tape, whether unbound or bound in leather. In other words, to organize knowledge and information wherever it appears and wherever it is located. In practical terms it almost always means to build a classified (or systematic) catalogue or a bilbiography.

This arrangement does not depend on the physical quarters, on the conditions or diversity of library materials or climate. It depends on the user's

1. educational sophistication
2. academic or informational needs
3. cultural, philosophical and political background

The **educational sophistication** of the user determines the depth of analysis and the precision required. While a layman might be satisfied with alphabetical or political arrangement of languages of a specific continent, a linguist will require a classification starting with a macrophylum and ending with a dialect.

The **academic and informational needs** of the user are very often related to his educational sophistication and specialization, although this relationship is not always apparent. The linguist specializing in the language of American Indians might require various literary forms together with pure linguistic studies; an undergraduate might require the library forms grouped with other literary forms of Canada. An historian specializing in the slave trade wants African and American history together arranged by periods not by countries. A crop researcher wants information on botany and agriculture together: That is soils, climatology, irrigation, agricultural technology, etc. The educational level and the needs of the user require great precision and analysis. The user often wants all relationships and facets indicated: the time facet, the place facet, the form of presentation facet, language facet, level facet or any other facet

relevant to his needs. The actual location of an item containing the needed information is less important (if at all) than the precise description of the subject content.

The **cultural, philosophical and political background** of the user is the most elusive element that needs to be considered and researched. It is the contention of this writer that a classification scheme designed for a person from one cultural group will be inappropriate to a person from another culture regardless of his educational background. Cultural, philosophical and political values form and modify the approach to life and thus to **concepts-formation** and even more importantly to the interrelationship of concepts. While the educational background and needs of two art historians might be precisely the same, their understanding, interpretation and approach will be drastically different depending on their cultural and philosophical background. While one will associate sculpture with an art museum, the other might associate it with a judicial process of his community; while one will place textiles in fine arts, the other will relegate it to technology, etc. Equally important to one's concept-formation will be the political base of the person; the understanding of functions and expectation placed upon a governmental unit differ greatly and influence one's total outlook on life. There are many examples of this that could be cited; it is enough to mention religion and education. Their functions, processes and relationships would vary depending on whether a person comes from a totalitarian or anarchistic type of society.

COGNITIVE FUNCTION

The **cognitive function** addresses the assessment of relationships, interrelationships, connections, interconnections, associations, approximation, and relevance in order to describe the "complete" identity of a concept in the universe of concepts. In practical terms, it means to provide access points in information storage and searching especially in:

1. formulation of subject descriptors
2. orgainizing the descriptors
3. assisting in the interrogation of files

In this respect, Vickery quotes Alan Rees as follows:

> There are three main purposes of a classificaiton scheme or, indeed, of any indexing language. The first is, in my opinion at least, to normalize the language of the documents on the one hand and the language of the questions on the other; i.e., to bring document language into coincidence with question language. Two, to serve as a useful device to the indexer in the intellectual task of characterizing the subject contents of the document; i.e. to display synonyms, hierarchical and other relationships, to facilitate intelligent selections of terms by the indexer. Three--and here is one that isusually overlooked--to provide a tool to the searcher in analyzing and defining questions put to the file. (B.C. Vickery, **Faceted Classifcation Schemes**, 1966, p. 15)

The cognitive function of classification has attracted substantial attention, especially in the design of indexing language, in solving programming computer input and storage, and in designing special classification schemes: the theoretical work of the Classification Research Group, the PRECIS indexing system, and the work of the anthropological and linguistic groups of international scholars come to mind as the most outstanding examples.

The **formulation of subject descriptors** encounters several problems, namely that of:

a. language and communication
b. learning concept formation, abstracting (i.e. cognitive thinking)
c. definition of subject matter.

Language of communication reflects rules of order which are commonly meaningful to two or more indivuduals acting as senders and receivers. The order is mastered during the lifetime of induviduals and is constantly modified. It is safe to assume that people from the same cultural group and familiar with the same educational and philosophical bases of an academic discipline will have little difficulty communicating. Individuals with different cultural and educational bases, however, will encounter countless problems. The question poses itself at once: can the communication be established especially when additional abstract codification (e.g. application of specific descriptors is involved) is introduced? Can communication be established between individuals with different understandings of space, time, cause, substance, class structure, religious belief, etc? What do we know about learning processes in concept formation and abstracting? And last but not least, how do we define the subject content of compounded concepts?

We assume we know the answers and proceed in formulating the subject descriptors in three distinct ways by:

a. isolating "key" tems as used in a document
b. assigning subject descriptors from a pre-coordinated list (alphabetical index vocabulary)
c. freely designing a string of terms and arranging them in a prestructured order with document oriented specific qualifiers

The first method, often called "quick and dirty", is purely mechanical and can only satisfy the immediate needs. It is doubtful whether this method is worth the effort and cost. The second method, best illustrated by lists of subject headings, is correctly under attack from many sources. It is possible that unless completely re-examined it might not survive. The third method introduced by PRECIS might prove itself to be the best suited for the global use in multilingual indexing systems.

The **organization of descriptors** concerns itself with:

a. classification
b. interrelationships of terms
c. establishment of thesauri

The classification for organization of descriptors differs greatly from classification schemes designed for shelving and for organizing entries in catalogues. By its nature, it is multi-dimensional (unlike the other two being linear) and it emphasizes the relationships between concepts. While a certain amount of enumeration is necessary, its essential parts are synonymous, hierarchical and associative relationships. These relationships must be clearly indentified and proper connectives established. In traditional terms, the connectives are represented by **see** and **see also** references and/or by facet indicators. It cannot be overemphasized that all relationships must be fully analyzed, and thus synonymous and quasi-synonymous relationships as well as associative relationships be recognized. We assume, due to our educational heritage, that hierarchical relationships are taken for granted. After brief examination, we might, however, question the strict adherence to hierarchical order, or we might wish to introduce other relationships: the sea-dwelling mammals might have to be linked to other sea-dwelling animals (e.g. whales with sting-ray fish) , disregarding their placement in a different hierarchical location. When no obvious relationships exist (outside the synonymous, hierarchical, associative, and environmental relationships), a linking device must be introduced. While this device is a standard practise of systematic classification schemes, it does not exist in current application of descriptors, except in the PRECIS system (which provided linking of unrelated terms by the use of specific term interlink operators x, y, z). All the above relations and interrelations must be taken into account in thesaurus construction--without them, the thesaurus becomes an unimaginative and very limited list of subject headings.

In summary, the organization of descriptors depends upon the definition of the subject by that subject's relationships and not by its position in a discipline of study measured by the academic or traditional standards.

Assisting in the interrogation of files, be it card catalogue or computerized data file, addresses:

a. formulation of questions
b. understanding the language and needs of an enquirer
c. interpretation of the question and of the file
d. provision of an answer

The human mind, whether consciously or unconsciously, sees the individual's environment in a specific classificatory manner. When it requires information about a process, material, product, purpose, or the form, it places that information in a specific position and in relation to other concepts that the mind considers related; therefore, the mind classifies. The language of the enquiry follows an order and rules that are also part of a specific classification. When the search of a file does not immediately produce the desired answer, the mind begins to classify by narrowing or broadening the search. When in turn that process fails to produce results, the mind begins to seek synonymous relationships, and eventually, sometimes in desperation, the mind seeks environmental relationships--it expands from linear to multi-dimensional search. Standard classification schemes cannot, due to their relationships, provide the desired effects--the multi-dimensional classification can. While it might be impossible to reduce

such a classification to a standard scheme, it is possible to express it in a geometric model and then reduce it to a thesaurus with all the necessary links and interlinks. Here the computer, with its faultless memory, ultimate patience and incredible speed can assist the mind in the process of producing the required answer.

COMPARISON OF FUNCTIONS

The three functions of library classification, as outlined above, cannot be achieved by the same classification scheme. Under an ideal situation, at least two schemes should be used: one for storage and retrieval of physical objects, the other for bibliographic and interrogational functions. Libraries depending on a dictionary catalogue, like most American libraries, can superficially be satisfied with one classifcition scheme, as they seem to be with the Dewey Decimal and Library of Congress schemes. As soon as they start using computers for informational retrieval, problems will arise. Skeptics will doubt the validity of the above statement. Let us take the liberty of making another comparison: how do we solve the following three problems--transfer of a box of books and pamphlets on the history of Canada from Edmonton to an Inuit village, transfer of the knowledge of the history of Canada from a teacher to students, and finding information about Canadian attitudes to Eskimos? In the first instance, depending the the size of the collection, its monetary value and speed required, we can transport the box by:

a. snow mobile
b. Volkswagen car
c. truck
d. diesel train
e. jumbo jet plane

In the second instance, depending upon the age of the students, their level of education and their cultural background, we can use the following methods:

a. story hour
b. lecture
c. seminar
d. radio programme
e. televsion programme

In the third instance, depending upon the availability of equipment, the languages we know and the details or points of view requested we can use:

a. telephone
b. telex
c. printed book
d. motion picture

The conclusions we can draw are simple: the difference between a good classification scheme designed for shelving **and** a classification scheme for organizing entries in catalogues **and** a classification scheme designed for info nation storage and searching is as small or as great as the difference between a snow nobile **and** a story hour **and** a telephone.